

ELYMUS ARENARIUS AND
DIARRHENA AMERICANA IN WISCONSIN

HUGH H. ILTIS, JACK REED, AND THOMAS MELCHERT

There are few families that have been as thoroughly collected and worked on for the Flora of Wisconsin as the Gramineae. A book on the Grasses of Wisconsin (Fassett 1950) has been published which in turn is partially based on an unpublished Ph.D. thesis dealing with the Gramineae of the state (Shinners, 1943). It is therefore an uncommon event when a grass new to the state is discovered, or when substantial range extensions are recorded.

ELYMUS: The second author, under a research participation program supported by the National Science Foundation, has been engaged in a thorough floristic survey of the Point Beach State Forest, 4 miles north of Two Rivers, Manitowoc County, Wisconsin. Located on the shores of Lake Michigan, its diverse habitats, especially the beautiful dunes and swales, have long attracted botanical collectors. One of the 30 Wisconsin *Scientific Areas* is located in the forest.

Among the collections made last summer there was a well-developed specimen of **Elymus arenarius** L., the first record for this northern European strand species from Wisconsin. Swezey (1883) listed for Wisconsin the closely related *Elymus mollis* Trin. without precise locality, and no voucher specimens are known to back his report. It is possible that this is based on a collection of *Elymus arenarius*. *Elymus mollis*, a native North American species, does not occur in Wisconsin, its closest stations being on Lake Superior in Upper Michigan¹.

The specimen (Reed 381-WIS) grew on shifting sands of the first ridge of dunes paralleling the Lake Michigan strand, between, and south of, the main lodge and the lighthouse (T-20-N; R-25-E; Sect. 9). Its associated grass species, all very characteristic of the dunes, included *Ammophila breviligulata*, *Calamovilfa longifolia* var. *magna*, the endemic, as yet unnamed Great Lakes ecotype of *Agropyron dasystachyum*, as well as *Agropyron trachycaulon*, *A. repens*, *Elymus ca-*

¹We are grateful to our "rival" floristic worker, Dr. Ed Voss of the University of Michigan, Ann Arbor, for calling our attention to Dr. Bowden's paper, and for this distributional information.

nadensis and *Koeleria cristata*. The specimen was in full fruit when collected on July 9.

The taxonomic confusion surrounding *Elymus mollis* and *E. arenarius* has been carefully and thoroughly elucidated by Bowden (1957). All Illinois collections of *E. mollis* cited by Jones (1955), who followed Hitchcock and Chase (1950), are *E. arenarius*. To these two Illinois collections, both from Cook County, we may add the following, based on a specimen deposited at WIS: Lake County: Lake Forest, Dec. 8, 1918, *L. S. Cheney s.n.*

Diarrhena americana: Fassett (1950) cites only one sheet of this species, since identified as var. *obovata* Gleason by Dr. Dennis Anderson, from Fayette, Lafayette County, Wisconsin, 1894, with no exact location data given. Attempts by the senior author to relocate this stand were unsuccessful. During the last two years, this taxon was rediscovered in Wisconsin at two localities. A large clone some 10 feet in diameter was found by the senior author in a very fine floodplain forest, the so-called "Avon Bottoms", along the Sugar River, 2 mi. SE of Avon (SW of the new bridge), in southwesternmost Rock county. Here, in association with *Quercus bicolor* (14'7" Diam. at breast height, the largest in Wisconsin!), *Q. macrocarpa*, *Ulmus americana*, *Acer saccharinum*, *Celtis occidentalis* and *Tilia americana*, grow a wealth of species, including some southern ones otherwise rare in most of Wisconsin, such as *Platanus occidentalis*, *Arabis shortii*, *Arisaema dracontium*, *Cephalanthus occidentalis*, *Chaerophyllum procumbens* — an abundant annual Umbelliferae here at its only Wisconsin station, *Evonymus atropurpureus*, and *Menispermum canadense*.

The third author found fully mature specimens of *Diarrhena* in a deciduous open forest along the Kickapoo River below Wisconsin Highway 131, in southern Monroe County (T-15N; R-2W; Sect. 13), a station some 100 miles to the north of the nearest previous one. The grass may actually be more common in Wisconsin, but perhaps is collected rarely since it fruits in late summer, a time when, in the past at least, collecting activity at Wisconsin was at a minimum.

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HERBARIUM TECHNIQUES. — 1. *A Quick Method for Preparing Permanent Mounts of Seeds or Small Fruits*. — The cardboard micropaleontological specimen slide, long a fixture in the geology laboratory, is remarkably well adapted for use by those botanists interested in making detailed studies of seeds or small fruit. Such slides, often referred to as "Cushman Foraminiferal Slides", are 1" x 3" or 1" x 4" rectangles of laminated cardboard into which circular or rectangular cavities of various depths and sizes have been cut. Standard diameter for circular cavities is 12.5 mm; standard dimensions for rectangular cavities are 45 mm x 20 mm. Depths ranging from 1 to 3 mm may be ordered for either circular or rectangular depressions. The floor of the cavities may be plain black (see figures 2, 3, 4, 5) or, in the rectangular type, may be black with a white grid of 60 numbered squares (see figure 1). Thus, in the latter type, as many as 60 separate achene or seed specimens could be mounted upon one slide. The lightness of the cardboard slides is a factor of great value in that samples prepared in this way may, after celluloid slide covers are attached, be easily glued to herbarium sheets. If, on the other hand, a separate seed collection is desirable, a large number of slides may be stored in a small space. All of the above described slides, together with slide covers and slide clips, may be obtained from the W. H. Curtin Company, Houston, Texas or New Orleans, Louisiana.

The micropaleontologist's method of preparing specimens of small fossils is similarly adaptable to botanical work. The